STATE OF ILLINOIS

POLLUTION CONTROL BOARD

309 WEST WASHINGTON STREET SUITE 300

CHICAGO, ILLINOIS 60606

TELEPHONE 312-793-3620

December 18, 1973

Mr. Patrick O. Boyle
Legal Counsel
Olin Corporation
Energy Systems Operations
E. Alton, Illinois 62024

Mr. Samuel L. Xanders
Attorney at Law
108 N. Port Drive
Beltline Highway
Godfrey, Illinois 62035

Ms. Nancy Schaffenacker
Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

PCB73-395

OLIN CORPORATION

v.

ENVIRONMENTAL PROTECTION AGENCY

Dear Sirs:

Enclosed please find certified copies of the Opinion and Order of the Board adopted December 13, 1973 for the above entitled matter.

Very truly yours,

Christan L. Moffett

Christan L. Moffett
Clerk of the Board

CLM:gn
enc.
cc: T. Immel
R. Cosby
L. Eaton
R. Goldberg
J. Anderson
L. Hudson
C. Clark

ILLINOIS POLLUTION CONTROL BOARD
December 13, 1973

OLIN CORPORATION, a Virginia Corporation,	)	
Petitioner,	)	PCB 73-395
vs.	)	
ENVIRONMENTAL PROTECTION AGENCY,	)	
Respondent.	)	

Mr. Patrick O. Boyle, Attorney on behalf of Petitioner.
Mr. Dale R. Turner, Assistant Attorney General and Mr. Paul Schmierbach, Attorney, appeared on behalf of the Environmental Protection Agency.

OPINION AND ORDER OF THE BOARD (by Mr. Seaman):

On September 17, 1973, Petitioner, Olin Corporation, filed its Petition seeking a one-year variance from Rule 203(e) of this Board's Air Pollution Regulations (effective January 1, 1974).

At its facility in Williamson County, Illinois, Petitioner manufactures, inter alia, items which require propellant or pyrotechnic technology. Petitioner has disposed of the explosive wastes therefrom by open burning pursuant to the terms of a Variance originally granted by the Illinois Air Pollution Control Board (VR 67-60) and subsequently extended by the Illinois Pollution Control Board (PCB 72-517, PCB 72-357, PCB 71-371, PCB 71-60).

Petitioner has constructed a new and novel pollution control device for the disposal of its explosive and pyrotechnic wastes (hereinafter termed "experimental combustion device"). This experimental permit granted by the Agency on March 3, 1972 (OB 02 72 041, FIPS #199 055).

On February 9, 1973, Petitioner submitted an application to operate its new device (application # C-3-02-039, I.D. #199 055 AAR). The Agency denied said application on March 12, 1973. Petitioner, by the instant action, seeks variance to operate the experimental combustion device for a term of one year.

The pollution control equipment on the subject device consists of a wet venturi scrubber and cyclone, costing a total of $14,000. The Agency calculates that the described pollution control equipment has a particulate removal efficiency of 99.7%.

Petitioner estimates that the maximum amount of explosive scrap to be disposed of in any one week during 1974 will be as follows:

Category	Maximum Amount per Week
Ammonium Nitrate Propellant	300 lbs.
Double Base Propellant	40 lbs.
Single Base Propellant	20 lbs.
Pyrotechnic Flare Mix (high Magnesium content)	10,000 lbs.
Fuel Oil	Sufficient to immerse pyrotechnic mix as required for safety reasons
RDX	100 lbs.
Contaminated Packaging and Transfer Materials	100 lbs.

The Agency calculates emissions from the device to be 1.24 pounds per hour particulates and 1.61 pounds per hour carbon monoxide.

The subject device is situated in a remote area on a strip mine spoil land owned by Petitioner. Particulate concentrations in Petitioner's site area are 64 micrograms per cubic meter (maximum 24-hour average) and 32 micrograms per cubic meter (annual geometric mean). Both of these concentrations are well below primary and secondary national air quality standards. The 1975 particulate primary air quality standard is 75 $\mu g/m^3$ annual geometric mean and 260 $\mu g/m^3$ for a 24-hour average.

Petitioner states that it knows of no safe means to dispose of the explosive waste here involved other than by open burning or operation of the subject experimental device. The Agency concludes (Recommendation, p.3) that considerably more pollution would be emitted should Petitioner continue to open burn than if Petitioner employed its experimental combustion device.

Petitioner has no compliance program since it alleges that the subject device represents an advance in the state of the art which is not presently recognized in the Illinois Emission Standards and Limitations for stationary sources. Petitioner's views have been presented to the Standards Section of the Division of Air Pollution Control at meetings held in Springfield, Illinois, on April 26, 1973 and September 6, 1973. Further, Petitioner intends to petition this Board for regulations covering the subject device.

The cost of constructing the subject device was approximately $90,000 and it is estimated that the cost of operation, vis-à-vis the cost of open burning, would entail a ten-fold increase in labor alone (R.22). The Agency recommends that this variance be granted and emphasizes that Petitioner has had a good record of compliance with previous Board Orders.

We are disposed to grant the variance requested, subject to conditions. Petitioner's device appears to have advanced the state of the art and we will allow it an opportunity to prove its effectiveness. In any event, both the Agency and Petitioner currently agree that utilization of the subject device will greatly diminish the amount of air pollution being presently experienced from open burning of explosive wastes.

This Opinion constitutes the findings of fact and conclusions of law of the Board.

ORDER

IT IS THE ORDER of the Pollution Control Board that Petitioner, Olin Corporation, be granted a Variance from Rule 203(e) of the Air Pollution Regulations to operate the subject experimental combustion device for the disposal of its pyrotechnic wastes for a period of one year from the date of this Order, subject to the following conditions:

1. That the firing rate into Petitioner's experimental combustion device shall not exceed 500 pounds per hour of pyrotechnic wastes.

2. That Petitioner shall obtain from the Agency an Operating Permit for the experimental combustion device.

3. That Petitioner shall not open burn any pyrotechnic wastes. In the event of a breakdown of the experimental combustion device, Petitioner shall store all pyrotechnic wastes until repairs are completed; however, if the time period necessary for repairs creates unreasonable safety hazards, then Petitioner may open burn such stored wastes after actual notice and approval by the Agency for each instance of open burning.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, certify that the above Opinion and Order was adopted this 13th day of December, 1973 by a vote of 5 to 0.

Christan L. Moffett

IL-15-12

STATE OF ILLINOIS
AIR POLLUTION CONTROL BOARD
616 STATE OFFICE BUILDING
SPRINGFIELD, ILLINOIS 62706

FOR INFORMATION TELEPHONE 525-7327
(AREA 217)

TECHNICAL SECRETARY
CLARENCE W. KLASSEN
Chief Sanitary Engineer
Department of Public Health
Telephone 525-6580 (Area 217)

INSTALLATION PERMIT APPLICATION FOR INCINERATORS

FOR OFFICE USE ONLY
I.D. No. [ ]
Permit No. [ ]
Date Examined [ ] By [ ]

1. NAME OF OWNER: Olin Corporation
ADDRESS OF OWNER: P.O. Drawer G, Marion, Ill. 62959
2. NAME AND TITLE OF PERSON PREPARING APPLICATION: R. D. Altekruse, Engineer
SIGNATURE: R D Altekruse
3. NAME OF INSTALLATION: Pyrotechnic Incinerator
ADDRESS OF INSTALLATION: (STREET, CITY, COUNTY, ZIP CODE) P.O. Drawer G, Marion, Ill. 62959
[ ] INSIDE INCORPORATED LIMITS – CITY NAMED [XX] OUTSIDE LIMITS IN TOWNSHIP
4. DESCRIPTION OR SOURCE OF WASTE: Pyrotechnic Manufacture
TYPE WASTE: Pyrotechnic
BTU/LB (AS FIRED): [3600]
DAILY AMOUNT: 1000 lb (LBS./CU. FT.) [XX] ESTIMATED [ ] ACTUAL
BASIS OF ESTIMATE: (INDICATE NUMBER UNITS AND SIZE AREA SERVED, INCLUDE FOOD SERVICE AREAS)

5. MAKE OF INCINERATOR: Gillespie & Powers
MODEL NO.: N/A
CLASS: N/A
RATED CAPACITY: (LB./HR.) [300]
SPARK ARRESTER: None
MATERIAL AND SIZE OPENING:
6. OPERATED: 0 to 7 HRS/DAY
STORAGE CAPACITY FOR WASTE: 1000 CU. FT.
INSTALLATION: [ ] INDOORS [XX] OUTDOORS
7. TOTAL HEAT RELEASE (ENTIRE UNIT): 1660 BTU/HR./CU.FT.
CHARGING METHOD: [XX] TOP [ ] SIDE [ ] END
HAVE NFPA STANDARDS BEEN COMPLIED WITH: [ ] YES [ ] NO In Process
8. % EXCESS AIR: 1200%
% AIR APPLIED AS OVERFIRE: 100%

PRIMARY COMBUSTION CHAMBER

VOLUME: 650 CU.FT.
EFFECTIVE GRATE AREA: No Grate SQ.FT.
HEARTH AREA: 12 SQ.FT.
TOTAL HEAT RELEASE: 1660 BTU/HR./CU. FT.

SECONDARY COMBUSTION CHAMBER

10. VOLUME: None CU.FT.
MAXIMUM GAS VELOCITY @ 1400 °F. IN FLAME PORT: FPS
RETENTION TIME OF GAS IN SETTLING CHAMBER:

AUXILARY BURNERS

11. TYPE AND FUEL: None
NUMBER:
CAPACITY OF EACH: BTU/HR.
FLAME FAILURE CONTROL:

DAMPERS

12. [ ] HORIZONTAL SLIDING [ ] GUILLOTINE [ ] BUTTERFLY None [ ] BAROMETRIC
DIA. INCHES

DRAFT

13. [ ] NATURAL [XX] INDUCED [ ] FORCED 10,000 CFM AT 250 °F

OVERLAPS

14. BETWEEN THE TOP OF THE BRIDGEWALL AND BOTTOM OF CURTAIN WALL: N/A INCHES
BETWEEN THE BOTTOM OF CURTAIN WALL AND TOP PAVING IN FLUE CONNECTION: N/A INCHES

GAS CLEANING DEVICES

15. TYPE: Venturi
MANUFACTURER: Mikropul
CAPACITY: 8290 SCFM
EFFICIENCY: 99.5%

STACK

16. HEIGHT ABOVE GRADE: 12 FT.
MATERIALS OF CONSTRUCTION: 22 Ga. Stainless Steel
INSIDE DIAMETER: 16" x 11-1/2" IN.
HEIGHT NEARBY OBSTRUCTION: 10 ft.
DISTANCE TO NEAREST OBSTRUCTION: 10 ft.
17. EXPECTED DATE OF COMPLETION: July, 1972
18. PROVIDE DRAWING DIMENSIONED, IN PLAN ELEVATION AND AS MANY SECTIONS AS ARE NECESSARY TO SHOW THE DESIGN, OPERATION AND LOCATION OF THE INCINERATOR INCLUDING STACK AND BREECHING AND AUXILARY GAS CLEANING DEVICES, IF USED, AND FLAME PORT DIMENSIONS.

19. TOTAL INSTALLED COST INCINERATOR: $88,187
COST OF GAS CLEANING DEVICES: $14,078
TAX RELIEF APPLIED FOR: [X] YES [ ] NO
DATE APPLIED FOR: In Process
NO. OF TAX FORM: To be determined

SOURCE OPERATIONS DIAGRAM

INSTRUCTIONS:

(a) Flow diagram may be schematic or to scale. All equipment should be shown.

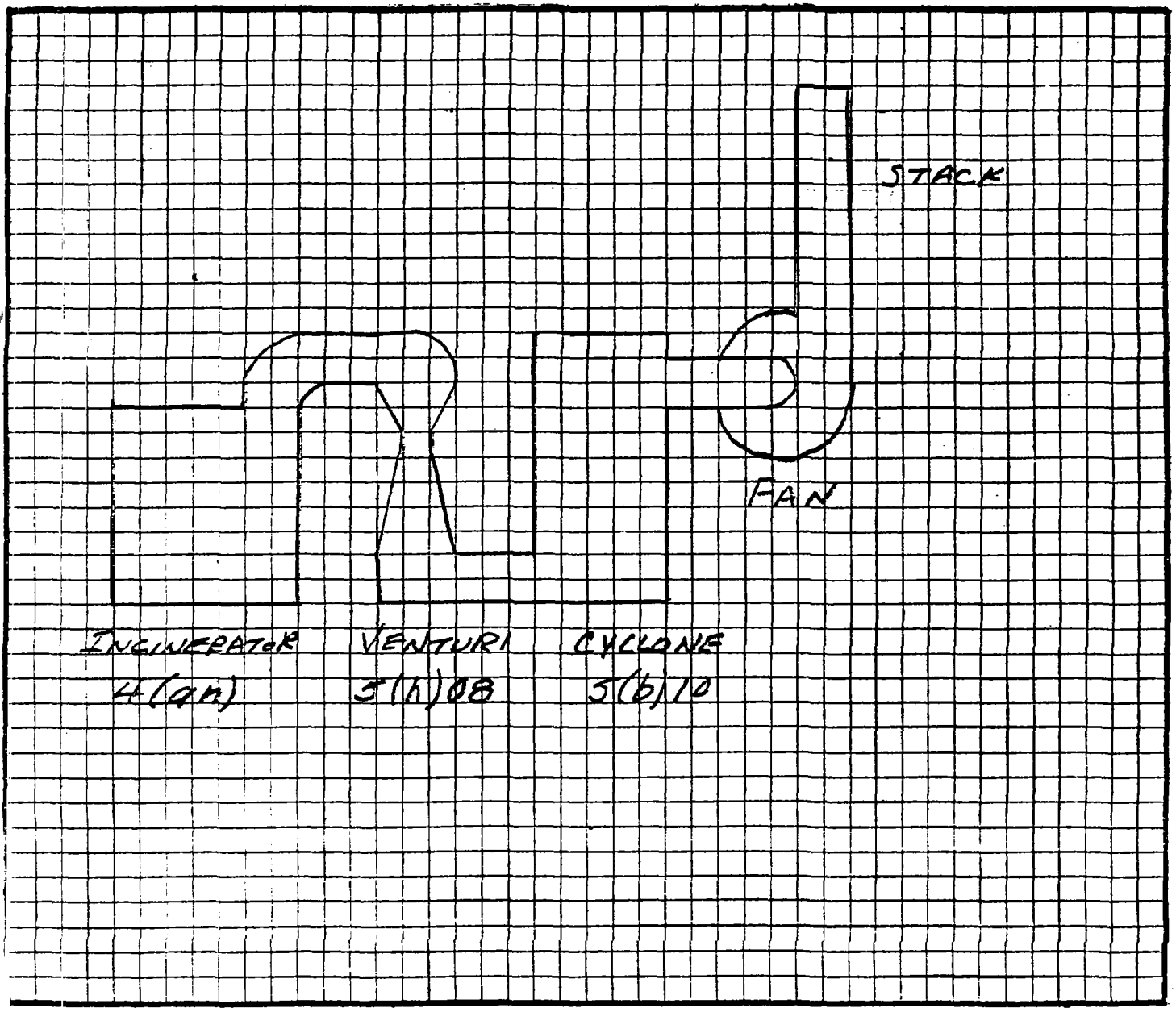
(b) Show complete flow diagram of source operation from raw materials to finished product.

(c) If more than one source operation is being constructed to make finished product, then show each separately and indicate where they merge.

(d) Show number of pieces of equipment doing the same operation.

(e) Indicate all points in process where all or other gases leave the process.

(f) Use key on Schedules 4 and 5 or Form B to indicate Equipment, Material, or Stack.



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STATE OF ILLINOIS
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INSTALLATION PERMIT APPLICATION

FOR SOURCE OPERATIONS AND GAS CLEANING DEVICES

Page 1

FOR OFFICE USE ONLY
I. D. No. [ ][ ][ ][ ][ ][ ]
Permit No. [ ][ ][ ][ ][ ][ ]
Date Examined [ ][ ][ ][ ][ ][ ] By [ ][ ]

1. Name of Owner: Olin Corporation
Address of Owner: P.O. Drawer G, Marion, Illinois 62959

2. Name and title of person preparing application: R. D. Altekruse, Engineer
Signature: R D Altekruse

3. Name of Installation: Pyrotechnic Incinerator
Address of Installation: (street, city, county, zip code) P.O. Drawer G, Marion, Ill. 62959

[ ] Inside incorporated limits – City named [XX] Outside limits in Township

4. SOURCE OPERATION SCHEDULE (COMPLETE MODIFIED FORM B FOR EACH)

NO. OF UNITS	SOURCE OPERATION	NO. OF UNITS	SOURCE OPERATION	NO. OF UNITS	SOURCE OPERATION	NO. OF UNITS	SOURCE OPERATION
(a)	Spray Booth	(k)	Sandblast	(u)	Dryer	(ae)	
(b)	Silk Screen Process	(l)	Rotoblast	(v)	Heat Treating	(af)	
(c)	Flowcoater	(m)	Shot Blast	(w)	Other Oven	(ag)	
(d)	Paint Dip	(n)	Mixers	(x)	Crucible	(ah)	
(e)	Other Dip	(o)	Classification	(y)	Cupola	(ai)	
(f)	Conveyors	(p)	Grinding	(z)	Electric Arc	(aj)	
(g)	Tanks	(q)	Disintegration	(aa)	Induction	(ak)	
(h)	Printing	(r)	Baking Oven	(ab)	Reverberatory	(al)	
(i)	Storage Rooms	(s)	Curing Oven	(ac)	Rotary	(am)	
(j)	Bulk Loading or Unloading	(t)	Kiln	(ad)	Shake Out Areas	(an) 1	OTHER Incinerator

5. GAS CLEANING DEVICES SCHEDULE: (COMPLETE PAGE 3 FOR THESE DEVICES)

NO. OF UNITS	CONTROL DEVICE	NO. OF UNITS	CONTROL DEVICE	NO. OF UNITS	CONTROL DEVICE	NO. OF UNITS	CONTROL DEVICE
(a)	Settling Chamber (09)	(e)	Spray Chamber (05)	(i)	Absorber (01)	(m)	Fabric Filter (13)
(b) 1	Cyclone (10)	(f)	Scrubber (06)	(j)	Adsorber (02)	(n)	Electrostatic Precipator (14)
(c)	Multiple Cyclone (11)	(g)	Packed Tower (07)	(k)	Catalytic burner (03)	(o)	Masking (15)
(d)	Rotoclone (12)	(h) 1	Venturi Scrubber (08)	(l)	Afterburner (04)	(p)	Other – Specify (16)

6. EQUIPMENT COST

Total Installed Cost Equipment	Cost of Gas Cleaning Equipment	% of Total Equipment Cost
$88,187	$14,078	100%

Tax Relief Applied For:	Date Applied For:	No. of tax Form:
[X] Yes [ ] No	In Process	To be Determined

ILLINOIS AIR POLLUTION
CONTROL BOARD

cc 80 FORM B – SOURCE OPERATION DATA

SOURCE OPERATION NUMBER _____

cc 79 = CARD IDENTIFICATION – PUNCH: 9

I.D. NO
cc 1 – 6 _____

A. DESCRIBE SOURCE OPERATION AND TYPE OF PROCESS EQUIPMENT.

Pyrotechnic Waste Incinerator (See Attached Form)

OFFICE USE ONLY

CARD COLS.			
10	11	12	13
BEC NUMBER			
14	15	16	17
BEC FACTOR			

Card Cols. 7 8 9

B. RAW MATERIALS USED IN SOURCE OPERATION FOR NORMAL THROUGHPUT CAPACITY. NORMAL OPERATION IS 6 0 % OF MAXIMUM CAPACITY.

MATERIAL	STARTING WEIGHT	MATERIAL	STARTING WEIGHT
1. Pyrotechnic Waste	5 lb/min.	5.	
2.		6.	
3.		7.	
4.		8.	

C. EMISSION: Check types of discharge that can possibly be emitted from process or equipment directly to atmosphere through stacks or ducts.

cc 18 - 1 [X] Solid, particulate matter
cc 19 - 2 [ ] Steam
cc 20 - 3 [ ] Gases, vapors or fumes
cc 21 - 4 [ ] Odors of any type
cc 22 - 5 [ ] Mists or Aerosols
cc 23 - 6 [ ] None

SOURCE OPERATION DISCHARGES – cc 24
1 [ ] From Stack 2 [ ] At Ground Level 3 [X] From Vents or other Opening

25 26 27 28: 1 2 (FT.) STACK HEIGHT ABOVE GRADE

D. PROCESS WEIGHT RATE (lbs./hr.) cc- 29 30 31 32 33 34 35: 3 0 0

E. OPERATION TIME hrs/day cc- 36 37 38: 7

F. INLET GAS RATE (SCFM)

COLLECTION EQUIPMENT

INLET LOADING

G. GRAINS/SCF 39 40 41 42: 3 8

H. lbs/1000 lbs GAS 58 59 60 61:

I. PRIMARY COLLECTOR: (See Code Below) 43 44: 0 8

J. SECONDARY COLLECTOR: (See Code Below) 62 63: 1 0

K. (%) Card Cols. 45 46 47: 9 9.5 (primary) 64 65 66: 9 9.5 (secondary)

L. OPERATION IS
[ ] Continuous
[X] Batch
Cycle per batch XXXX. min.. CD. COLS. 48 49 50: 1 0

CARD COLS 51 52 53 54 55 56 57: 8 2 9 0

M. MEASURED – ESTIMATED EMISSIONS TO ATMOSPHERE (lbs/hr) 67 68 69 70 71: 1.4

N. ALLOWABLE EMISSIONS TO ATMOSPHERE (lbs/hr.) 72 73 74 75 76: 3.6

INSTRUCTIONS: (NOTE – Dotted lines indicate position of decimal point. Use additional sheets for miscellaneous comments.)

Item A. Describe your source operation and type of process equipment.
B. List all starting raw materials charged, including solid fuels. Specify lbs/hr. For batch operations specify lbs.
C. Check appropriate boxes and enter discharge information.
D. Indicate the total weight rate of all materials introduced into the source operation. Solid fuels charged will be considered as part of the process weight but liquid and gaseous fuels and combustion air will not. Include recycled material.
E. Enter normal operational hours per day for this source operation.
F. Enter rate of gas inlet to collection equipment in standard cubic feet per minute.
G&H. Enter particulate concentration of gas inlet to collection equipment in either column G or H.
I&J. List collection equipment serving the process, code as follows:

01–Absorber	03–Catalytic burner	05–Spray Chamber	07–Packed Tower	09–Settling Chamber	11–Multiclone	13–Baghouse	15–Masking
02–Adsorber	04–Afterburner	06–Scrubber	08–Venturi Scrubber	10–Cyclone	12–Rotoclone	14–Precipitator	16–Other

K. Enter estimate of collector efficiency (%).
L. Check type of operation. For batch operation, enter hours per batch cycle.
M. Enter estimate of particulates emitted to the atmosphere from this operation in lbs/hr. Circle Measured or Estimated.
N. Enter allowable emission from Table I, Chapter III of the Regulations.

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CLARENCE W. KLASSEN
Chief Sanitary Engineer
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Telephone 525-6580 (Area 217)

INSTALLATION PERMIT APPLICATION
FOR SOURCE OPERATIONS AND GAS CLEANING DEVICES

	a. Complete the sections indicated: ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10 ☐11		b. Installation Address: P.O. Drawer G, Marion, Ill.62959	
1	c. Owner Name: Olin Corporation		d. Owner Address: P.O. Drawer G, Marion, Ill. 62959	
	e. Prepared by: (Signature) R. D. Altekruse		f. Prepared by: (Name and title) R. D. Altekruse, Engineer	
2	a. EQUIPMENT DATA	b. Type of Equipment: Incinerator	c. Make and Model: Special Design	d. Dimensions (LxWxH): 10 x 10 x 12
	e. Number of units, capacity: 300 lb./hr.	f.	g. Auxiliary Equipment	h. Connected to: Gas Scrubber
3	a. SETTLING CHAMBER	b. Retention time (sec.)	c. Dimensions (LxWxH)	d. Settling Velocity (FPS)
	e. Number of units on construction	f.	g. Length of settling path	h. Connected To:
4	a. BURNER DATA	b. Type of Burner, Fuel	c. Make and Model	d. Rating
	e. Number of units, ignition	f.	g. CFM Exhausted (Temperature)	h. Connected To:
5	a. STACKS, VENTS AND EXHAUST OPENING	b. Type of Vent: Stack	c. Dimensions (LxWxH): 16" x 11-1/2"x12'	d. Dampers
	e. Number of vents, construction	f.	g. CFM Exhausted (Temperature) ☐o/s ☐i/s 8290	h. Connected To:
6	a. LIQUID FLOW	b. Flow (Spray, Bubbler, etc.): Venturi Throat	c. Contact Area	d. Contact Time (sec.)
	e. Composition of Solution: Water	f.	g. Flow Rate (GPH): 4800	h. Make Up (GPH): 4800
7	a. FAN DATA	b. Type of Fan (Designate Blade): H-20	c. Make and Model: Buffalo 805	d. Motor Data: 75 HP
	e. Number of fans, construction	f.	g. CFM Exhausted (Temp. & S.P.) ☐o/s ☐i/s 8290	h. Connected To: Stack
8	a. CYCLONE DATA	b. Type of Cyclone ☐multiclone ☒common ☐split duct	c. Make and Model: Mikropul	d. Inlet Area: 2.8 Sq. Ft.
	e. Number of units, construction: 1	f. Body Diameter: 58 inch; Outlet Diameter: 1'10"x1'10" inch	g. Body Height: 114 Inch; High Efficiency ☒Yes ☐No	h. Connected To: Fan
9	a. WASTE DATA	b. Description of waste: Pyrotechnic Waste	c. Amount Collected: 1000 Pounds/Day	d. Particle Size (Average): .27 Microns
	e. Types of Pollutants ☐Odor ☒Particulate ☐Aerosol ☐Gas	f.	g. Collection (specify) ☐In Bins ☐ In water	h. Disposition of Collected Wastes: ☐Scavenger ☒(specify)
10	a.	b.	c.	d. Captive Pond
	e.	f.	g.	h.
11	a.	b.	c.	d.
	e.	f.	g.	h.
	i.	j.	k.	l.

GILLESPIE & POWERS INC. engineering & construction
4829 EASTON AVENUE • ST. LOUIS, MISSOURI 63113 • JEFFERSON 3-4110

Olin Corporation
Marion, Illinois

PYROTECHNIC SCRAP WASTE INCINERATOR

MAJOR EQUIPMENT SUMMARY

1. Building

One 12'x18'x10' Butler M-36 building. Building to be galvanized, unpainted, with trim. Accessories shall include one 9'x9' galvanized overhead door, two window sashes, and two man doors. The building shall utilize a galvanized steel panel of sufficient strength and configuration to serve as both structural support and exterior cover without need for an independent structural framing system. The panel thickness shall be not less than that recommended by the Metal Buildings Manufacturer's Association, and shall be capable of spanning 12' in simple span with a design loading of 30 PSF plus panel dead loading without exceeding a deflection-to-span ratio of 1 to 180.

2. Incinerator

Shall be a steel-cased refractory-lined unit, having an inside diameter of 10' and an overall height of 12'. This unit shall serve as the ignition chamber for the introduction

of a pyrotechnic waste material. A hydraulically operated charging door shall be located on top of the structure to permit the discharging of the packets onto an incandescent coke bed at the bottom of the ignition chamber. Air ports of sufficient number and size shall be uniformly spaced around the perimeter of this unit to provide an equivalent air flow of approximately 20,000 SCFM. The incinerator shall be connected to the scrubber by way of stainless steel duct work.

3. Scrubber

The scrubber shall be a Model 4100 Mikro/Airetron venturi scrubber with cyclonic slurry/air separator with the following features:

Inlet - 1'10" square
Exhaust - 1'10" square (2'2" dia. optional)
Venturi height - 7'9"
Separator size - 4'10" dia. x 9'6½" O.A. height
Construction - 12-gauge 316 stainless steel
Access - 18" dia. manhole with hinged quick opening hatch
Pressure taps - three ½" NPT (one located at venturi inlet, one at separator inlet, and one at separator exit)
Special features - manually adjustable venturi throat and separator inlet to permit matching of unit to the air flow

PRESSURE DROP - 34" W.G.

4. Fan

The fan shall be a Buffalo-Forge, Size #805, Type H-20, heavy-duty centrifugal fan, single inlet, arrangement #8 for direct drive, complete with motor base, flanged inlet and

outlet, split and gasketed housing section for wheel and shaft removal, access door, shaft seal, housing drain, 75-horsepower, 1800-RPM, TEFC General Electric motor, coupled, all factory mounted.

5. Building Unit Heater

This heater shall be a Heil #EF-33-LE-R, 32,800 BTU per hour, 9.6-KW, 240-volt, 60-cycle, ¼-horsepower, 4-speed electric heater.

6. Hydraulic Cylinder

Shall be an Ortman-Miller Model #2TH, Style J, 2½" bore by 34" stroke, 1-3/8" diameter rod, with rod clevis and pin.

7. Hydraulic Motor

To be Char-Lynn #AK-7.

8. Hydraulic Package

This shall include a 4-gallon-per-minute, 2-horsepower pump and motor combination, with 5-gallon reservoir. Also included shall be two solenoid-operated directional control valves, speed-control valves, adjustable relief valves, return-line filter, and necessary hardware. Unit shall be John S. Barnes Series 3218, Unit #25.

9. Water Circulation Pump

Shall be Wemco 3x1½x6 B torque flow polypropelene chemical pump with 3-horsepower TEFC motor.

10. Lift Station Sump Pump

This shall be Barnes Model SS-30 sump pump, complete with level control, gate and check valve.

11. Pressure Switches

The pressure switches shall be Meletron 2200 Series.

12. Timers

These are to be Eagle Signal Division's Cycl-Flex timers HP-53.

13. Incandescent Charcoal Sensor

To be Barber-Colman Model 1470 flameotrol combustion safeguard master.

14. Flash Detector

To be Barber-Colman Model 1480 flameotrol combustion safeguard slave.

15. Flame Eyes

The flame eyes for the detection of incandescent coals and flash are to be Barber-Colman Model 1291, complete with heat insulating flange assembly.

CKG/fm(12/3/71)

IL-15-13

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

RICHARD B. OGILVIE, GOVERNOR

WILLIAM L. BLASER, DIRECTOR

CONSTRUCTION PERMIT APPLICATION FOR EMISSION SOURCE

FOR OFFICIAL USE ONLY
I.D. NO.
PERMIT NO.
DATE

1a. NAME OF OWNER: Olin Corporation	1b. NAME OF OPERATOR: Same
2a. TELEPHONE NUMBER OF OWNER: (618) 985-3721	2b. TELEPHONE NUMBER OF OPERATOR:
3a. STREET ADDRESS OF OWNER: P.O. Drawer G	3b. STREET ADDRESS OF OPERATOR:
4a. CITY OF OWNER: Marion,	4b. CITY OF OPERATOR:
5a. STATE OF OWNER: Ill. 5b. ZIP CODE: 62959	6a. STATE OF OPERATOR: 6b. ZIP CODE:
7. NAME OF CORPORATE DIVISION OR PLANT (IF DIFFERENT FROM OWNER):	
8. TELEPHONE NUMBER OF DIV. OR PLANT: 9. LOCATED WITHIN CITY LIMITS: ☐ YES ☒ NO	10. STREET ADDRESS OF EMISSION SOURCE:
11. CITY: 11a. TOWNSHIP:	12. COUNTY: 13. ZIP CODE:

0 1 4 8 0 0 0 7 3

THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT TO CONSTRUCT OR MODIFY THE EQUIPMENT DESCRIBED HEREIN AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT.

OWNER (if individual)

Signature Date

Your Identification Number (Optional)

OWNER (if corporation or partnership)

Olin Corporation February 7, 1973

Exact corporate or partnership name Date

By Robert C. Menken

Signature Title

Robert C. Menken, Vice President
Energy Systems Operations

OPERATOR (if individual)

Signature Date

OPERATOR (if corporation or partnership)

By

Exact corporate or partnership name Date

Signature Title

IF AN OWNER OR OPERATOR IS A CORPORATION, IT MUST HAVE ON FILE WITH THE AGENCY, A CERTIFIED COPY OF A RESOLUTION OF ITS BOARD OF DIRECTORS AUTHORIZING THE INDIVIDUALS SIGNING THE APPLICATION TO EXECUTE THIS CONSTRUCTION PERMIT APPLICATION AND TO CAUSE OR ALLOW THE CONSTRUCTION, MODIFICATION AND OPERATION OF THE EQUIPMENT TO BE COVERED BY THE PERMIT.

THIS PERMIT APPLICATION CONSISTS OF APPLICATION FORMS AND OTHER EXHIBITS LISTED BY TITLE AND NUMBER OF PAGES BELOW.

APC-63 3 pages
Addendum 2 pages
Destructor-Retort Sketch SK-APC-63-1, 1 page
Flow Diagram Sketch SK-APC-63-2, 1 page

1/13

I.D. NO. | FOR OFFICIAL USE ONLY | PERMIT APPLICATION NO. S

GENERAL INFORMATION

NOTE: APPLICANT MUST SUBMIT TWO COPIES (THREE IF LOCATED IN COOK COUNTY) OF EACH OF THE FOLLOWING:

1. CONSTRUCTION PERMIT APPLICATION FORM (SEPARATE APPLICATION FORM FOR EACH EMISSION SOURCE NOT COVERED BY AN ATTACHED ADDENDUM).
2. DIMENSIONED DRAWINGS, PLAN, ELEVATION (SECTIONED WHERE NECESSARY AND WHERE APPLICABLE), PLOT PLAN AND MAP SHOWING DISTANCES TO NEAREST BOUNDARY OF THE PROPERTY ON WHICH THE EMISSION SOURCE IS LOCATED AND THE DISTANCES TO NEAREST RESIDENCES, LODGINGS, NURSING HOMES, HOSPITALS, SCHOOLS AND COMMERCIAL AND MANUFACTURING ESTABLISHMENTS.
3. FLOW DIAGRAM AS SPECIFIED IN THE INSTRUCTION SHEET.

14. NAME OF PROCESS: Destructor-Retort	15. NAME OF EMISSION SOURCE EQUIPMENT: Retort	
16. EMISSION SOURCE EQUIPMENT MANUFACTURER: Olin Corporation	17. MODEL NUMBER: N/A	18. SERIAL NUMBER: N/A
19. NUMBER OF IDENTICAL EMISSION SOURCES: 1	20. TYPE PROCESS: ☐ CONTINUOUS XX BATCH	
21. PROCESS WEIGHT RATE: See Addendum LB/HR	22. BATCH RATE: See Addendum BATCH/HR ____ LB/HR	

23. COMPOSITION OF RAW MATERIALS USED IN THE PROCESS AND PERCENT OF EACH BY WEIGHT (COMMON NAME SHOULD BE GIVEN IF CHEMICAL NAME IS UNKNOWN):

See Addendum

0 4 1 9 0 0 0 0 1 7 4

24. NAME OF PRODUCTS MANUFACTURED:	MAXIMUM PRODUCTION RATE FOR EACH PRODUCT:	ESTIMATED AVERAGE PRODUCTION RATE OF EACH PRODUCT:
a. 20mm Ammunition	b. 1500 rounds XX/HR	c. 1000 rounds XX/HR
d.	e. ____ LB/HR	f. ____ LB/HR
g.	h. ____ LB/HR	i. ____ LB/HR
25. WASTE MATERIALS FROM MANUFACTURING PROCESS:	MAXIMUM AMOUNT OF WASTE MATERIALS PRODUCED.	ESTIMATED AVERAGE AMOUNT OF WASTE MATERIALS PRODUCED.
a. Fuzes	b. .3 LB/HR	c. .2 LB/HR
d. Primers	e. .03 LB/HR	f. .01 LB/HR
g. Loaded Projectiles	h. .8 LB/HR	i. .4 LB/HR

26. AVERAGE OPERATION TIME OF EMISSION SOURCE: 2 HRS/DAY 5 DAYS/WK 52 WKS/YR

27. PERCENT OF ANNUAL THROUGHPUT: DEC/FEB 25 % MAR/MAY 25% JUNE/AUG 25 % SEP/NOV 25 %

T.D. NO. | | | | | | | | | FOR OFFICIAL USE ONLY PERMIT APPLICATION NO. S | | | | | | | |

EXHAUST GAS ANALYSIS
(FROM EMISSION SOURCE TO CONTROL EQUIPMENT)

NOTE: IF THE EMISSION SOURCE WHICH IS THE SUBJECT OF THIS CONSTRUCTION PERMIT APPLICATION IS SERVED BY MORE THAN ONE EXHAUST STACK OR VENT, THE APPLICANT SHALL COMPLETE SEPARATE SHEETS FOR EACH SUCH STACK OR VENT.

CONTAMINANT	CONCENTRATION	EMISSION RATE	METHOD OF MEASURE AND ANALYSIS	METHOD OF MONITORING
28. CARBON MONOXIDE	a. PPM	b. LB/HR	c.	d.
29. CARBON DIOXIDE	a. PPM	b. LB/HR	c.	d.
30. CHLORINE	a. PPM	b. LB/HR	c.	d.
31. HYDROCARBONS AS CH_4	a. PPM	b. LB/HR	c.	d.
32. HYDROGEN CHLORIDE	a. PPM	b. LB/HR	c.	d.
33. HYDROGEN SULFIDE	a. PPM	b. LB/HR	c.	d.
34. NITROGEN	a. PPM	b. LB/HR	c.	d.
35. NITROGEN OXIDES AS NO_2	a. PPM	b. LB/HR	c. SEE ADDENDUM	d.
36. SULFUR DIOXIDE	a. PPM	b. LB/HR	c.	d.
37. OTHER (SPECIFY)	a. PPM	b. LB/HR	c.	d.
38. PARTICULATE MATTER	a. GRAIN/SCF	b. LB/HR	c.	d.

39. PARTICULATE MATTER COMPOSITION EXPRESSED AS PERCENT BY WEIGHT OF EACH COMPONENT (COMMON NAME SHALL BE GIVEN IF CHEMICAL NAME IS UNKNOWN):

NOTE: THIS SECTION TO BE COMPLETED ONLY IF EMISSIONS ARE EXHAUSTED DIRECTLY TO THE ATMOSPHERE WITHOUT ANY CONTROL EQUIPMENT:

40. HOW EMISSIONS ARE EXHAUSTED: ☐ STACK ☐ VENT	41. GAS EXIT VELOCITY: FPS	42. GAS EXIT TEMPERATURE: °F

43. DRAFT CONTROLS: ☐ MANUAL ☐ AUTOMATIC ☐ BAROMETRIC ☐ OTHER (SPECIFY)_____

44. DISTANCE OF THE STACK OR VENT FROM THE NEAREST PLANT BOUNDRY OF THE APPLICANT: FT.	45. HEIGHT OF STACK OR VENT ABOVE GRADE: FT.
46. HEIGHT OF STACK OR VENT ABOVE ROOF: FT.	47. HEIGHT OF TALLEST BUILDING WITHIN 150 FEET: FT.
48. YOUR DESIGNATION OF STACK:	49. AREA OF STACK OR VENT AT EXIT: FT^2

50. IF OTHER EMISSION SOURCES OR AIR POLLUTION CONTROL EQUIPMENT ARE EXHAUSTED THROUGH THE STACK OR VENT SERVING THE EQUIPMENT COVERED BY THIS APPLICATION, THE APPLICANT SHALL DEFINE THE EMISSIONS FROM SUCH OTHER EQUIPMENT AND ATTACH SUCH INFORMATION TO THIS APPLICATION AS EXHIBIT G.

TOTAL NUMBER OF PAGES IN EXHIBIT G:_____ Being determined for Experimental Pyrotechnic Destructor (EPA Ref OB 02 72 041,FIPS #199,05

51. THE APPLICANT SHALL SUBMIT AN ESTIMATE OF THE MAXIMUM ONE-HOUR AMOUNTS OF PARTICULATE MATTER, SULFUR DIOXIDE, CARBON MONOXIDE, OXIDES OF NITROGEN, AND HYDROCARBONS (AS METHANE) EMITTED FROM ALL SOURCES LOCATED ON THE PLANT OR PREMISES, INCLUDING THE EMISSIONS ESTIMATED FROM THE EQUIPMENT COVERED BY THIS APPLICATION, AND THE AREA (IN ACRES) OF THE PLANT OR PREMISES OF THE APPLICANT. 100 acres

MATERIAL	ONE-HOUR MAX. AMOUNTS	MATERIAL	ONE-HOUR MAX. AMOUNTS	MATERIAL	ONE-HOUR MAX. AMOUNTS
PARTICULATE MATTER	1.2 LB	SULFUR DIOXIDE	Nil LB	NITROGEN OXIDES AS NO_2	Nil LB
HYDROCARBONS AS CH_4	Nil LB	CARBON MONOXIDE	16 LB		

ADDENDUM TO FORM APC-63

Addition of a new product line at the Marion, Illinois, plant of the Olin Corporation will result in the necessity for disposition of waste components containing high explosives. The only known safe method for disposition of these materials is to subject them to sufficient heat to cause burning and/or detonation of the explosive ingredients. This cannot be accomplished in the Experimental Pyrotechnic and Propellant Destructor which Olin has been testing (EPA reference OB 02 72 041, FIPS #199055) because the system would be severely damaged by the frequent detonations. The normal method of disposition is to charge the components slowly into a heavy steel Destructor Retort which is heated by means of a standard oil burner and to allow the heavy steel walls to contain shrapnel from the detonations. This Construction Permit Application covers installation of such a Destructor-Retort at the Marion Plant.

Construction of the Destructor-Retort is shown in attached sketch SK-APC-63-1. It is recognized that this operation would be considered open burning if the combustion products were allowed to escape to the atmosphere untreated. Olin, therefore, proposes that the Destructor-Retort effluent be ducted to the scrubbing system now existent as part of the Pyrotechnic Destructor (EPA reference OB 02 72 041, FIPS #199 055). The flow diagram for the system is shown in attached sketch SK-APC-63-2.

It is proposed that the Destructor-Retort be installed immediately adjacent to the existing scrubber. Plot plan maps of this remote abandoned strip mine area were submitted as part of the Permit Application for the Pyrotechnic Destructor mentioned above.

The oil burner which supplies the heat for the system is of the air atomizing type and burns 7 gallons per hour of No. 2 fuel oil.

Three types of waste will be charged to the unit. These are:

A. Fuses loaded with

1. Detonator

HMX Explosive	98%	
Graphite	1%	6 grams
Calcium Resinate	1%	

and 2. Primer loaded with

Lead Styphnate Explosive	14.4%	
Lead Azide Explosive	63.2%	2.2 grams
RDX Explosive	22.4%	

B. Primers loaded with

Carbon Black	.75%	
Barium Nitrate	44.25%	
Calcium Silicide	13.00%	
Gum Arabic	1.00%	0.194 grams
Lead Styphnate Explosive	40.00%	
Trinitrorecorsinol	1.00%	

and C. Projectiles loaded with

RDX Explosive	66%	
Aluminum Powder	33%	180 grains
Graphite	1%	
Calcium Stearate	$<$0.25%	

Process charge rates of these materials would be a maximum of

A. Fuses - 8 lb/hr.

B. Primers - 2 lb/hr.

C. Projectiles - 10 lb/hr.

No stack tests have been performed on any of these operations because of the obvious hazards involved. However, primer mixes of similar chemical compositions have been burned and stack tests taken. Results of these tests were as follows:

Charge Rate	6 lb/hr.
Particulate emissions adjusted for 50% excess air	0.28 grains/cu.ft.
NO_x (as NO_2)	1.1 ppm
SO_2	158 ppm

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

RICHARD B. OGILVIE, GOVERNOR

WILLIAM L. BLASER, DIRECTOR

CONSTRUCTION PERMIT APPLICATION FOR EMISSION SOURCE

FOR OFFICIAL USE ONLY

I.D. NO. 1 9 0 0 5 5 A A R

PERMIT NO. C 8 0 2 0 3 9 1

DATE 12 Feb 22 Jan 71

1a. NAME OF OWNER: Olin Corporation	1b. NAME OF OPERATOR:
2a. TELEPHONE NUMBER OF OWNER: 618/985-3721	2b. TELEPHONE NUMBER OF OPERATOR:
3a. STREET ADDRESS OF OWNER: P.O. Drawer G	3b. STREET ADDRESS OF OPERATOR:
4a. CITY OF OWNER: Marion,	4b. CITY OF OPERATOR:
5a. STATE OF OWNER: Illinois; 5b. ZIP CODE: 62959	6a. STATE OF OPERATOR: ; 6b. ZIP CODE:
7. NAME OF CORPORATE DIVISION OR PLANT (IF DIFFERENT FROM OWNER):	
8. TELEPHONE NUMBER OF DIV. OR PLANT: ; 9. LOCATED WITHIN CITY LIMITS: ☐ YES ☒ NO	10. STREET ADDRESS OF EMISSION SOURCE:
11. CITY: ; 11a. TOWNSHIP:	12. COUNTY: ; 13. ZIP CODE:

5

0 4 4 8 0 0 0 0

THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT TO CONSTRUCT OR MODIFY THE EQUIPMENT DESCRIBED HEREIN AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT.

OWNER (if individual)

Signature _____ Date _____

Your Identification Number (Optional)

OWNER (if corporation or partnership)

Olin Corporation — February 7, 197

Exact corporate or partnership name — Date

By Robert C. Menken

Signature

Robert C. Menken, Vice President
Energy Systems Operations

Title

OPERATOR (if individual)

Signature _____ Date _____

OPERATOR (if corporation or partnership)

By _____

Exact corporate or partnership name — Date

Signature — Title

IF AN OWNER OR OPERATOR IS A CORPORATION, IT MUST HAVE ON FILE WITH THE AGENCY, A CERTIFIED COPY OF A RESOLUTION OF ITS BOARD OF DIRECTORS AUTHORIZING THE INDIVIDUALS SIGNING THE APPLICATION TO EXECUTE THIS CONSTRUCTION PERMIT APPLICATION AND TO CAUSE OR ALLOW THE CONSTRUCTION, MODIFICATION AND OPERATION OF THE EQUIPMENT TO BE COVERED BY THE PERMIT.

THIS PERMIT APPLICATION CONSISTS OF APPLICATION FORMS AND OTHER EXHIBITS LISTED BY TITLE AND NUMBER OF PAGES BELOW.

APC-63 - 3 pages
APC-61 - 6 pages
APC-104 - 1 page
Addendum - 1 page
Test Report - 16 pages

I.D. NO. | FOR OFFICIAL USE ONLY | PERMIT APPLICATION NO. S

GENERAL INFORMATION

NOTE: APPLICANT MUST SUBMIT TWO COPIES (THREE IF LOCATED IN COOK COUNTY) OF EACH OF THE FOLLOWING:

1. CONSTRUCTION PERMIT APPLICATION FORM (SEPARATE APPLICATION FORM FOR EACH EMISSION SOURCE NOT COVERED BY AN ATTACHED ADDENDUM).
2. DIMENSIONED DRAWINGS, PLAN, ELEVATION (SECTIONED WHERE NECESSARY AND WHERE APPLICABLE), PLOT PLAN AND MAP SHOWING DISTANCES TO NEAREST BOUNDARY OF THE PROPERTY ON WHICH THE EMISSION SOURCE IS LOCATED AND THE DISTANCES TO NEAREST RESIDENCES, LODGINGS, NURSING HOMES, HOSPITALS, SCHOOLS AND COMMERCIAL AND MANUFACTURING ESTABLISHMENTS.
3. FLOW DIAGRAM AS SPECIFIED IN THE INSTRUCTION SHEET.

14. NAME OF PROCESS: Pyrotechnic Destruction	15. NAME OF EMISSION SOURCE EQUIPMENT: Pyrotechnic Destructor
16. EMISSION SOURCE EQUIPMENT MANUFACTURER: Gillespie & Powers, Inc.	17. MODEL NUMBER: N/A / 18. SERIAL NUMBER: N/A
19. NUMBER OF IDENTICAL EMISSION SOURCES: 1	20. TYPE PROCESS: ☐ CONTINUOUS ☒ BATCH
21. PROCESS WEIGHT RATE: 500 (max) LB/HR	22. BATCH RATE: _____ BATCH/HR (max.) 500 LB/HR

23. COMPOSITION OF RAW MATERIALS USED IN THE PROCESS AND PERCENT OF EACH BY WEIGHT (COMMON NAME SHOULD BE GIVEN IF CHEMICAL NAME IS UNKNOWN):

a. Pyrotechnic Waste (see below) 75/80%
   Charcoal 20/25%
b. Solid Propellant Waste(see below) 75/80%
   Charcoal 20/25%

24. NAME OF PRODUCTS MANUFACTURED:	MAXIMUM PRODUCTION RATE FOR EACH PRODUCT:	ESTIMATED AVERAGE PRODUCTION RATE OF EACH PRODUCT:
a. N/A	b. N/A LB/HR	c. N/A LB/HR
d.	e. LB/HR	f. LB/HR
g.	h. LB/HR	i. LB/HR

25. WASTE MATERIALS FROM MANUFACTURING PROCESS:	MAXIMUM AMOUNT OF WASTE MATERIALS PRODUCED.	ESTIMATED AVERAGE AMOUNT OF WASTE MATERIALS PRODUCED.
a. 15% Sodium Oxide 85% Magnesium Oxide	b. 400 LB/HR	c. 300 LB/HR
d.	e. LB/HR	f. LB/HR
g.	h. LB/HR	i. LB/HR

26. AVERAGE OPERATION TIME OF EMISSION SOURCE: 6 HRS/DAY 2 DAYS/WK 52 WKS/YR	27. PERCENT OF ANNUAL THROUGHPUT: DEC/FEB 25 % MAR/MAY 25 % JUNE/AUG 25 % SEP/NOV 25 %

23 (Continued)

a. Pyrotechnic Waste
   58% Magnesium Powder
   37% Sodium Nitrate
   5% Organic Binder
   plus sufficient #2 fuel oil to wet waste for safety reasons

b. Solid Propellant Waste
   75% Ammonium Nitrate
   15% Synthetic Rubber
   10% Various Organic Chemicals

C.D. 30. | FOR OFFICIAL USE ONLY | PERMIT APPLICATION NO. S

EXHAUST GAS ANALYSIS
(FROM EMISSION SOURCE TO CONTROL EQUIPMENT)

NOTE: IF THE EMISSION SOURCE WHICH IS THE SUBJECT OF THIS CONSTRUCTION PERMIT APPLICATION IS SERVED BY MORE THAN ONE EXHAUST STACK OR VENT, THE APPLICANT SHALL COMPLETE SEPARATE SHEETS FOR EACH SUCH STACK OR VENT.

CONTAMINANT	CONCENTRATION	EMISSION RATE	METHOD OF MEASURE AND ANALYSIS	METHOD OF MONITORING
28. CARBON MONOXIDE	a. PPM	b. LB/HR	c.	d.
29. CARBON DIOXIDE	a. PPM	b. LB/HR	c.	d.
30. CHLORINE	a. PPM	b. LB/HR	c.	d.
31. HYDROCARBONS AS CH_4	a. PPM	b. LB/HR	c.	d.
32. HYDROGEN CHLORIDE	a. PPM	b. LB/HR	c.	d.
33. HYDROGEN SULFIDE	a. PPM	b. LB/HR	c.	d.
34. NITROGEN	a. PPM	b. LB/HR	c.	d.
35. NITROGEN OXIDES AS NO_2	a. PPM	b. LB/HR	c.	d.
36. SULFUR DIOXIDE	a. PPM	b. LB/HR	c.	d.
37. OTHER (SPECIFY)	a. PPM	b. LB/HR	c. See attached test report.	d.
38. PARTICULATE MATTER	a. GRAIN/SCF	b. LB/HR	c.	d.

39. PARTICULATE MATTER COMPOSITION EXPRESSED AS PERCENT BY WEIGHT OF EACH COMPONENT (COMMON NAME SHALL BE GIVEN IF CHEMICAL NAME IS UNKNOWN):

85% Magnesium Oxide and 15% Sodium Oxide

NOTE: THIS SECTION TO BE COMPLETED ONLY IF EMISSIONS ARE EXHAUSTED DIRECTLY TO THE ATMOSPHERE WITHOUT ANY CONTROL EQUIPMENT:

40. HOW EMISSIONS ARE EXHAUSTED: ☐ STACK ☐ VENT	41. GAS EXIT VELOCITY: FPS	42. GAS EXIT TEMPERATURE: ^{o}F
43. DRAFT CONTROLS: ☐ MANUAL ☐ AUTOMATIC ☐ BAROMETRIC ☐ OTHER (SPECIFY)		
44. DISTANCE OF THE STACK OR VENT FROM THE NEAREST PLANT BOUNDRY OF THE APPLICANT: FT.	45. HEIGHT OF STACK OR VENT ABOVE GRADE: FT.	
46. HEIGHT OF STACK OR VENT ABOVE ROOF: FT.	47. HEIGHT OF TALLEST BUILDING WITHIN 150 FEET: FT.	
48. YOUR DESIGNATION OF STACK:	49. AREA OF STACK OR VENT AT EXIT: FT^2	

50. IF OTHER EMISSION SOURCES OR AIR POLLUTION CONTROL EQUIPMENT ARE EXHAUSTED THROUGH THE STACK OR VENT SERVING THE EQUIPMENT COVERED BY THIS APPLICATION, THE APPLICANT SHALL DEFINE THE EMISSIONS FROM SUCH OTHER EQUIPMENT AND ATTACH SUCH INFORMATION TO THIS APPLICATION AS EXHIBIT G.

TOTAL NUMBER OF PAGES IN EXHIBIT G: _____

51. THE APPLICANT SHALL SUBMIT AN ESTIMATE OF THE MAXIMUM ONE-HOUR AMOUNTS OF PARTICULATE MATTER, SULFUR DIOXIDE, CARBON MONOXIDE, OXIDES OF NITROGEN, AND HYDROCARBONS (AS METHANE) EMITTED FROM ALL SOURCES LOCATED ON THE PLANT OR PREMISES, INCLUDING THE EMISSIONS ESTIMATED FROM THE EQUIPMENT COVERED BY THIS APPLICATION, AND THE AREA (IN ACRES) OF THE PLANT OR PREMISES OF THE APPLICANT. 100 acres

MATERIAL	ONE-HOUR MAX. AMOUNTS	MATERIAL	ONE-HOUR MAX. AMOUNTS	MATERIAL	ONE-HOUR MAX. AMOUNTS
PARTICULATE MATTER	1.24 LB	SULFUR DIOXIDE	nil LB	NITROGEN OXIDES AS NO_2	nil LB
HYDROCARBONS AS CH_4	nil LB	CARBON MONOXIDE	1.6 LB		

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

RICHARD B. OGILVIE, GOVERNOR

WILLIAM L. BLASER, DIRECTOR

CONSTRUCTION PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

FOR OFFICIAL USE ONLY
I.D. NO.
PERMIT NO.
DATE

1a. NAME OF OWNER: Olin Corporation	1b. NAME OF OPERATOR: Same
2a. TELEPHONE NUMBER OF OWNER: 618/985-3721	2b. TELEPHONE NUMBER OF OPERATOR:
3a. STREET ADDRESS OF OWNER: P.O. Drawer G	3b. STREET ADDRESS OF OPERATOR:
4a. CITY OF OWNER: Marion,	4b. CITY OF OPERATOR:
5a. STATE OF OWNER: Illinois 5b. ZIP CODE: 62959	6a. STATE OF OPERATOR: 6b. ZIP CODE:

7. NAME OF CORPORATE DIVISION OR PLANT (IF DIFFERENT FROM OWNER):

8. TELEPHONE NUMBER OF DIV. OR PLANT:	9. LOCATED WITHIN CITY LIMITS: ☐ YES XX NO	10. STREET ADDRESS OF EMISSION SOURCE:	
11. CITY:	11a. TOWNSHIP:	12. COUNTY:	13. ZIP CODE:

THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT TO CONSTRUCT OR MODIFY THE EQUIPMENT DESCRIBED HEREIN AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT.

OWNER (if individual)

Signature _____ Date _____

Your Identification Number (Optional)

OWNER (if corporation or partnership)

Exact corporate or partnership name _____ Date _____

By _____
Signature _____ Title _____

OPERATOR (if individual)

Signature _____ Date _____

OPERATOR (if corporation or partnership)

By _____
Exact corporate or partnership name _____ Date _____

Signature _____ Title _____

IF AN OWNER OR OPERATOR IS A CORPORATION, IT MUST HAVE ON FILE WITH THE AGENCY, A CERTIFIED COPY OF A RESOLUTION OF ITS BOARD OF DIRECTORS AUTHORIZING THE INDIVIDUALS SIGNING THE APPLICATION TO EXECUTE THIS CONSTRUCTION PERMIT APPLICATION AND TO CAUSE OR ALLOW THE CONSTRUCTION, MODIFICATION AND OPERATION OF THE EQUIPMENT TO BE COVERED BY THE PERMIT.

THIS PERMIT APPLICATION CONSISTS OF APPLICATION FORMS AND OTHER EXHIBITS LISTED BY TITLE AND NUMBER OF PAGES BELOW.

I.D. NO. | | | | | | | | | FOR OFFICIAL USE ONLY | PERMIT APPLICATION NO. C | | |

GENERAL INFORMATION

NOTE: APPLICANT MUST SUBMIT TWO COPIES (THREE IF LOCATED IN COOK COUNTY) OF EACH OF THE FOLLOWING:
1. DATA AND INFORMATION FOR EXISTING AIR POLLUTION CONTROL EQUIPMENT (SEPARATE APPLICATION FORMS FOR EACH ITEM OF CONTROL EQUIPMENT NOT COVERED BY AN ATTACHED ADDENDUM).
2. DIMENSIONED DRAWINGS, PLAN, ELEVATION (SECTIONED WHERE NECESSARY AND WHERE APPLICABLE) PLOT PLAN AND MAP SHOWING DISTANCES TO NEAREST BOUNDARY OF THE PROPERTY ON WHICH THE CONTROL EQUIPMENT IS LOCATED, AND THE DISTANCES TO NEAREST RESIDENCES, LODGINGS, NURSING HOMES, HOSPITALS, SCHOOLS, AND COMMERCIAL AND MANUFACTURING ESTABLISHMENTS.
3. FLOW DIAGRAM AS SPECIFIED IN THE INSTRUCTION SHEET.

	PRIMARY CONTROL EQUIPMENT	SECONDARY CONTROL EQUIPMENT	TERTIARY
14. TYPE OF CONTROL EQUIPMENT: (e.g., MULTICLONE, BAGHOUSE)	a. Wet Venturi	b. Cyclone	c.
15. MANUFACTURER:	a. Slick Corp.	b. Slick Corp.	c.
16. MODEL:	a. 4100	b. 4100	c.
17. SERIAL NUMBER:	a. 72-S-567 →	b. →	c.
18. COST OF CONTROL EQUIPMENT: (NOT INCLUDING INSTALLATION)	a. $ 14,000 →	b. $ → (Total)	c. $
19. INLET GAS RATE (CFM AT INLET TEMPERATURE & PRESSURE):	a. CFM	b. CFM	c.
20. INLET GAS RATE (AT STANDARD CONDITIONS):	a. 3570 SCFM	b. SCFM	c.
21. INLET TEMPERATURE (AT POINT OF INLET GAS RATE MEASUREMENT):	a. 270 °F	b. °F	c.
22. EXHAUST GAS RATE (CFM AT EXHAUST TEMPERATURE & PRESSURE):	a. 3900 CFM	b. CFM	c.
23. EXHAUST TEMPERATURE (AT POINT OF EXHAUST GAS RATE MEASUREMENT):	a. °F	b. 120 °F	c.
24. DUCT VELOCITY (AT POINT OF INLET GAS RATE MEASUREMENT):	a. FPS	b. FPS	c.
25. INLET GRAIN LOADING (AT POINT OF INLET GAS RATE MEASUREMENT):	a. 3.8 GRS/SCF	b. GRS/SCF	c.
26. GEOMETRIC MEAN DIAMETER OF PARTICULATE MATTER:	a. 0.45 MICRON	b. MICRON	c.
27. STANDARD GEOMETRIC DEVIATION OF DISTRIBUTION OF PARTICLE SIZE BY WEIGHT:	a. 4.2	b.	c.
28. INLET CONCENTRATION BY VOLUME % OF GASEOUS CONTAMINANTS IN THE TOTAL GAS STREAM. (NEED NOT SUBMIT THIS INFORMATION IF FORM APC-63 IS SUBMITTED):	a.	b.	c.
29. PRESSURE DROP:	a. 31 INCHES OF WATER	b. 6 INCHES OF WATER	c.
30. CONTROL EQUIPMENT EFFICIENCY:	a. 99.7 ☐ VOL % ☒ WT % →	b. → Total ☐ VOL % ☐ WT %	c.
31. EXHAUST GAS DEW POINT:	a. °F	b. °F	c.

32. AVERAGE OPERATION TIME OF CONTROL EQUIPMENT: 6 HRS/DAY 2 DAYS/WK 52 WKS/YR

33. PERCENT OF ANNUAL THRUPUT: DEC-FEB 25 % MAR-MAY 25 % JUNE-AU

I.D. NO. | FOR OFFICIAL USE ONLY | PERMIT APPLICATION NO. C

ADSORBERS AND AFTERBURNERS

ADSORBER	PRIMARY CONTROL EQUIPMENT	SECONDARY CONTROL EQUIPMENT	TERTIARY CONTROL EQUIPMENT
34. ADSORBER CAPACITY AT BREAKTHROUGH OF CONTAMINANTS:	a. LB/LB	b. LB/LB	c. LB/LB
35. TYPE ADSORBER:	☐ CARBON ☐ MOLECULAR SIEVE ☐ SILICA GEL ☐ ALUMINA ☐ OTHER (SPECIFY)_____	☐ CARBON ☐ MOLECULAR SIEVE ☐ SILICA GEL ☐ ALUMINA ☐ OTHER (SPECIFY)_____	☐ CARBON ☐ MOLECULAR SIEVE ☐ SILICA ☐ ALUMINA ☐ OTHER (SPECIFY)_____
36. WEIGHT OF ADSORBER MATERIAL:	a. LB	b. LB	c. LB
37. METHOD OF REGENERATION:	a.	b.	c.
38. TIME BETWEEN REGENERATIONS:	a. HRS	b. HRS	c. HRS
39. TIME BETWEEN REPLACEMENTS:	a. HRS	b. HRS	c. HRS
40. ADSORBER GEOMETRY:	a. DIA_____IN. b. LENGTH_____FT.	c. DIA_____IN. d. LENGTH_____FT.	e. DIA_____IN. f. LENGTH_____FT.
41. ADSORBER MATERIAL AVERAGE PARTICULATE SIZE:	a. IN	b. IN	c. IN
42. DISPOSITION OF VAPORS DURING REGENERATION:	a.	b.	c.

AFTERBURNER	PRIMARY CONTROL EQUIPMENT	SECONDARY CONTROL EQUIPMENT	TERTIARY CONTROL EQUIPMENT
43. FUEL (IF DUAL-FIRED BURNER CHECK BOTH FUELS):	☐ GAS ☐ OIL | AVG % OIL ASH ___ AVG % OIL SULFUR ___	☐ GAS ☐ OIL | AVG % OIL ASH ___ AVG % OIL SULFUR ___	☐ GAS ☐ OIL | AVG % OIL ASH ___ AVG % OIL SULFUR ___
44. MAXIMUM RATING:	a. THOUSAND BTU/HR	b. THOUSAND BTU/HR	c. THOUSAND BTU/HR
45. % MODULATION OF BURNER:	a. %	b. %	c. %
46. TYPE OF GAS MONITOR: (e.g., TEMPERATURE, RATE, PRESSURE)	a.	b.	c.
47. IS BURNER TEMPERATURE CONTROLLED:	a. ☐ YES ☐ NO	b. ☐ YES ☐ NO	c. ☐ YES ☐ NO
48. OPERATING TEMPERATURE OF CHAMBER:	a. °F	b. °F	c. °F
49. % OF THEORETICAL AIR FOR COMPLETE COMBUSTION INTRODUCED AS PRIMARY AIR THROUGH BURNER:	a. VOL. %	b. VOL. %	c. VOL. %
50. NAME OF CATALYST USED:	a.	b.	c.
51. CATALYST AREA:	a. FT^2	b. FT^2	c. FT^2
52. THROAT DIAMETER:	a. FT	b. FT	c. FT
53. COMBUSTION CHAMBER DIAMETER:	a. FT	b. FT	c. FT
54. COMBUSTION CHAMBER LENGTH:	a. FT	b. FT	c. FT
55. RETENTION TIME AT OPERATING TEMP:	a. SEC	b. SEC	c. SEC

N/A

I.D. NO. | FOR OFFICIAL USE ONLY | PERMIT APPLICATION NO. C

BAGHOUSES AND CYCLONES

BAGHOUSE	PRIMARY CONTROL EQUIPMENT	SECONDARY CONTROL EQUIPMENT	TERTIARY CONTROL EQUIPMENT
56. METHOD OF PRIOR COOLING:	☐ LIQUID SPRAY ☐ EXCESS AIR VOL _____ CFM ☐ EXTENDED DUCTWORK 1. LENGTH _____ FT 2. DIAMETER _____ IN 3. TYPE OF DUCT MATERIAL _____ 4. THICKNESS OF DUCT MATERIAL _____ IN 5. PAINT COLOR _____ 6. GAS VELOCITY _____ FPS ☐ OTHER (SPECIFY) a. _____	☐ LIQUID SPRAY ☐ EXCESS AIR VOL _____ CFM ☐ EXTENDED DUCTWORK 1. LENGTH _____ FT 2. DIAMETER _____ IN 3. TYPE OF DUCT MATERIAL _____ 4. THICKNESS OF DUCT MATERIAL _____ IN 5. PAINT COLOR _____ 6. GAS VELOCITY _____ FPS ☐ OTHER (SPECIFY) b. _____	☐ LIQUID SPRAY ☐ EXCESS AIR VOL _____ CFM ☐ EXTENDED DUCTWORK 1. LENGTH _____ FT 2. DIAMETER _____ IN 3. TYPE OF DUCT MATERIAL _____ 4. THICKNESS OF DUCT MATERIAL _____ IN 5. PAINT COLOR _____ 6. GAS VELOCITY _____ FPS ☐ OTHER (SPECIFY) c. _____
57. CLEANING METHOD:	☐ SHAKER ☐ REVERSE AIR ☐ OTHER (SPECIFY) a. _____	☐ SHAKER ☐ REVERSE AIR ☐ OTHER (SPECIFY) b. _____	☐ SHAKER ☐ REVERSE AIR ☐ OTHER (SPECIFY) c. _____
58. TYPE OF CLOTH MATERIAL:	a.	b.	c.
59. FILTER RATIO:	a. _____ CFM/FT^2	b. _____ CFM/FT^2	c. _____ CFM/FT^2
CYCLONE	**PRIMARY CONTROL EQUIPMENT**	**SECONDARY CONTROL EQUIPMENT**	**TERTIARY CONTROL EQUIPMENT**
60. TYPE OF CLONE:	a. ☐ SIMPLE ☐ MULTICLONE	b. ☐ SIMPLE ☐ MULTICLONE	c. ☐ SIMPLE ☐ MULTICLONE
61. FOR MULTIPLE UNITS GIVE NUMBER OF CLONES:	a.	b.	c.
62. CONE HEIGHT:	a. _____ IN	b. _____ IN	c. _____ IN
63. INLET WIDTH:	a. _____ IN	b. _____ IN	c. _____ IN
64. BODY HEIGHT:	a. _____ IN	b. _____ IN	c. _____ IN
65. BODY DIAMETER:	a. _____ IN	b. _____ IN	c. _____ IN
66. OUTLET DIAMETER:	a. _____ IN	b. _____ IN	c. _____ IN
67. INLET VELOCITY:	a. _____ FPS	b. _____ FPS	c. _____ FPS
68. EXIT VELOCITY FROM CLONE:	a. _____ FPS	b. _____ FPS	c. _____ FPS
69. CUT SIZE:	a. _____ MICRONS	b. _____ MICRONS	c. _____ MICRONS

N/A

I.D. NO [ ] FOR OFFICIAL USE ONLY PERMIT APPLICATION NO. C [ ]

WET COLLECTOR GENERAL INFORMATION

	PRIMARY CONTROL EQUIPMENT	SECONDARY CONTROL EQUIPMENT	TERTIARY CONTROL EQUIPMENT
71. TYPE OF WET COLLECTOR:	☐ CYCLONE ☐ ORIFICE ☐ SPRAY ☐ MECHANICAL a. ☒ OTHER (SPECIFY) Venturi	☒ CYCLONE ☐ ORIFICE ☐ SPRAY ☐ MECHANICAL b. ☐ OTHER (SPECIFY)	☐ CYCLONE ☐ ORIFICE ☐ SPRAY ☐ MECHANICAL c. ☐ OTHER (SPECIFY)
72. INLET SCRUBBANT COMPOSITION AND WT. % EACH:	COMPOSITION WT. % a. H_2O 100 b. c.	COMPOSITION WT. % d. e. f.	COMPOSITION WT. % g. h. i.
73. PH VALUE OF INLET SCRUBBANT:	a. 4.27	b.	c.
73. OUTLET SCRUBBANT COMPOSITION WT. % EACH	COMPOSITION WT. % a. MgO b. NaO 2.74 c. H_2O 97.26	COMPOSITION WT. % d. e. f.	COMPOSITION WT. % g. h. i.
74. SCRUBBANT FLOW:	a. 2100 GPH	b. GPH	c. GPH
75. SCRUBBANT MAKEUP RATE:	a. 2100 GPH	b. GPH	c. GPH
76 SCRUBBANT MAKEUP COMPOSITION AND WT. % SOLUTE:	a. N/A WT. %	b. WT. %	c. WT. %
77 VAPOR PRESSURE OF LIQUID CONTAMINANT AT OPERATING TEMPERATURE:	a. N/A PSIA	b. PSIA	c. PSIA
78. PRESSURE DROP	a. 31 INCHES OF WATER	b. 6 INCHES OF WATER	c. INCHES OF WATER
79. TYPE OF MIST ELIMINATOR:	a. ☐ SIMPLE BAFFLES ☐ OTHER ☒ NONE	b. ☐ SIMPLE BAFFLES ☐ OTHER ☒ NONE	c. ☐ SIMPLE BAFFLES ☐ OTHER ☐ NONE
SCRUBBER	PRIMARY CONTROL EQUIPMENT	SECONDARY CONTROL EQUIPMENT	TERTIARY CONTROL EQUIPMENT
80. NOZZLE PRESSURE:	a. PSIA	b. PSIA	c. PSIA
81. CONTACT AREA:	a. FT^2	b. FT^2	c. FT^2
82. TYPE OF PACKING:	a.	b.	c.
83. LENGTH OF PACKED BED:	a. IN	b. IN	c. IN
84. SCRUBBER CROSS-SECTIONAL AREA:	a. FT^2	b. FT^2	c. FT^2
VENTURI SCRUBBER	PRIMARY CONTROL EQUIPMENT	SECONDARY CONTROL EQUIPMENT	TERTIARY CONTROL EQUIPMENT
85. THROAT DIAMETER:	a. 2" x 20"	b. FT	c. FT
86. GAS VELOCITY AT THROAT:	a. 295 FPS	b. FPS	c. FPS
87. CORRELATION COEFFICIENT:	a.	b.	c.

I.D. NO. | | | | | | | | | FOR OFFICIAL USE ONLY | C | | | | | | |

EXHAUST

89 EXHAUST GAS FROM CONTROL EQUIPMENT IS VENTED TO: ☐ INSIDE BUILDING ☒ ATMOSPHERE ☐ OTHER (SPECIFY): _____

90. YOUR DESIGNATION OF STACK OR VENT: Destructor

91. HOW EMISSIONS ARE EXHAUSTED: ☒ STACK ☐ VENT

92. GAS EXIT VELOCITY: 51 FPS

93. GAS EXIT TEMPERATURE: 120 °F

94. DRAFT CONTROLS: ☒ MANUAL ☐ AUTOMATIC ☐ BAROMETRIC ☐ OTHER (SPECIFY) _____

95. HEIGHT OF STACK OR VENT ABOVE GRADE: 23-1/2 ft.

97. HEIGHT OF STACK OR VENT ABOVE ROOF: 13-1/2 FT

98. HEIGHT OF TALLEST BUILDING WITHIN 150 FEET: 10 FT

99. STACK OR VENT SERVES: ☒ ONLY THIS EQUIPMENT ☐ OTHER EQUIPMENT

100. AREA OF STACK OR VENT AT EXIT: 1.28 FT^2

101. IF OTHER EMISSION SOURCES OR AIR POLLUTION CONTROL EQUIPMENT ARE EXHAUSTED THROUGH THE STACK OR VENT SERVING THE EQUIPMENT COVERED BY THIS APPLICATION, THE APPLICANT SHALL DEFINE THE NATURE AND QUANTITY OF THE EMISSIONS FROM SUCH OTHER EQUIPMENT AND ATTACH SUCH INFORMATION TO THIS APPLICATION AS EXHIBIT G.

TOTAL NUMBER OF PAGES IN EXHIBIT G: _____

102 THE APPLICANT SHALL SUBMIT AN ESTIMATE OF THE MAXIMUM ONE-HOUR AMOUNTS OF PARTICULATE MATTER, SULFUR DIOXIDE, CARBON MONOXIDE, OXIDES OF NITROGEN, AND HYDROCARBONS (AS METHANE) EMITTED FROM ALL SOURCES LOCATED ON THE PLANT OR PREMISES, INCLUDING THE EMISSIONS ESTIMATED FROM THE EQUIPMENT COVERED BY THIS APPLICATION, AND THE AREA (IN ACRES) OF THE PLANT OR PREMISES OF THE APPLICANT. 100 acres

MATERIAL	ONE-HOUR MAX. AMOUNTS	MATERIAL	ONE-HOUR MAX. AMOUNTS	MATERIAL	ONE-HOUR MAX. AMOUNTS
PARTICULATE MATTER	1.24 LB	SULFUR DIOXIDE	nil LB	NITROGEN OXIDES AS NO_2	nil LB
HYDROCARBONS AS CH_4	nil LB	CARBON MONOXIDE	1.6 LB		

EXHAUST GAS ANALYSIS

CONTAMINANT	CONCENTRATION	EMISSION RATE	METHOD OF MEASURE AND ANALYSIS	METHOD OF MONITORING
103. CARBON DIOXIDE	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
104. CARBON MONOXIDE	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
105. CHLORINE	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
106. HYDROCARBONS AS CH_4	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
107. HYDROGEN CHLORIDE	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
108. HYDROGEN SULFIDE	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
109. NITROGEN	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
110. NITROGEN OXIDES AS NO_2	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
111 SULFUR DIOXIDE	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c. See Attached Test Report	d.
112 OTHER (SPECIFY)	a. PPM	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.
113 PARTICULATE MATTER	a. GRAIN/SCF	b. ☐ LB/10^6BTU ☐ LB/HR	c.	d.

4. PARTICULATE MATTER COMPOSITION EXPRESSED AS PERCENT BY WEIGHT OF EACH COMPONENT (COMMON NAME SHALL BE GIVEN IF CHEMICAL NAME IS UNKNOWN):

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

RICHARD B. OLILVIE, GOVERNOR

WILLIAM L. BLASER, DIRECTOR

ADDENDUM W
WASTEWATER TREATMENT
FROM
WET COLLECTORS

FOR OFFICIAL USE ONLY

I.D. NO.

PERMIT NO.

DATE

1. NAME OF OWNER: Olin Corporation	7. NAME OF CORPORATE DIVISION OR PLANT (IF DIFFERENT FROM OWNER): Same
2. TELEPHONE NUMBER: 618/985-3721	8. TELEPHONE NUMBER:
3. STREET ADDRESS OF OWNER: P.O. Drawer G	9. STREET ADDRESS OF EMISSION SOURCE:
4. CITY: Marion,	10. CITY: / 11. LOCATED WITHIN CITY LIMITS: ☐ YES ☐ NO
5. STATE: Ill. / 6. ZIP CODE: 62959	12. COUNTY: / 13. ZIP CODE:

NOTE: COMPLETE ITEMS 14 AND 15 IF WATER IS DISCHARGED TO A SEWER:

14. NAME AND TITLE OF PERSON CERTIFYING ADEQUATE CAPACITY OF TRANSPORT AND TREATMENT:	15. SIGNATURE AND DATE (OWNER OR AUTHORIZED AGENT OF SEWER SYSTEM AND IF APPLICABLE, TREATMENT WORKS):

PERMIT TO (X) *CONSTRUCT (X) *AND OPERATE ——— *(X) AS APPLICABLE

16. WASTEWATER FLOW RATE THROUGH AIR POLLUTION CONTROL DEVICE:

a. MAX. FLOW 16,800 GAL/DAY

b. AVG. FLOW 4,200 GAL/DAY

c. MIN. FLOW 0 GAL/DAY

17. CONTAMINANTS PRESENT IN WASTEWATER	FEED WATER TO DEVICE (mg/l)	DISCHARGE FROM DEVICE (mg/l)	EFFLUENT FROM TREATMENT PROCESS (mg/l)
SUSPENDED SOLIDS	nil	27,400	
TOTAL DISSOLVED SOLIDS			
pH	4.27	10.60	
OTHERS ***			

*** LIST AND ANALYZE ALL OTHER CONTAMINANTS IN WASTEWATER FOR WHICH STANDARDS ARE SET BY "CHAPTER 3, WATER POLLUTION CONTROL REGULATION OF ILLINOIS." (ATTACH ADDITIONAL SHEETS IF NECESSARY.)

18. TREATMENT PROCESS (ATTACH A SCHEMATIC FLOW DIAGRAM ON 8½" x 11" SHEET(S)) SHOWING THE WASTEWATER TREATMENT PROCESS INCLUDING LOADING RATES FOR EACH COMPONENT OF WASTEWATER TREATMENT SYSTEM.

N/A

19. NAME OF TREATMENT PLANT OR BODY OF WATER TO WHICH THE WASTE IS ULTIMATELY DISCHARGED.

Captive Former Strip Mine Pit on Olin Property

THIS ADDENDUM WILL BE REVIEWED BY THE DIVISION OF WATER POLLUTION CONTROL AND THE APPLICANT WILL BE NOTIFIED WHETHER OR NOT ADDITIONAL DATA OR DOCUMENTATION NEED BE SUBMITTED TO CONSTITUTE A COMPLETE APPLICATION FOR PERMIT AS REQUIRED BY PART IX OF "WATER POLLUTION REGULATIONS OF ILLINOIS."

Note: Wash water is cycled from an acid captive strip mine pond through a Venturi Scrubber and returned to the pond. This action tends to neutralize the acid pond.

ADDENDUM

The process covered by the included EPA Forms numbers APC-63, APC-61, and APC-104 was developed under a permit to open burn in an experimental incinerator granted March 3, 1972 by the Illinois EPA. (Illinois EPA reference OB 02 72 041, FIPS #199055).

Although the permit refers to an experimental incinerator, this Construction Application seeks permission for a "Process" rather than an "Incinerator" because of the nature of the equipment and of the material destructed. The materials oxidized are not the normal cabonaceous materials burned in an incinerator, but are chemicals which, when reacted with oxygen, yield very little carbon monoxide and carbon dioxide. Instead, large quantities of magnesium oxide and sodium oxide are formed. The process also differs from incineration in that the flame temperature of the materials is of such great magnitude as to necessitate very high flow of cooling air through the destructor. This flow of cooling air is also required to give sufficient volume under negative pressure to prevent smoke from puffing out the charging and draft openings during the very rapid combustion of the pyrotechnic material. Combustion of this type of material presents hazards which are minimized by use of large air flows. The equipment is operated with 2700 to 2900% excess air.

This equipment is considered as "existing" rather than "new" since actual construction was under contract in March of 1972 with the full knowledge and permission of the Illinois EPA.

Drawings, plot plans, area maps, and flow sheets for this process are not included here, as all pertinent material has previously been submitted under EPA References I 71 296, I.D. #006300 and OB 02 72 041, FIPS #199055.

TEST REPORT

OLIN DESTRUCTOR

Emission Test Results

The attached data are the results of the emission tests performed on 1/25/72 and 1/29/72 on the Olin Scrap Destructor located at Energy. This unit utilizes a high energy Venturi scrubber and a cyclone separator. Test #2 in the summary table shows that the Venturi scrubber is removing 99.74% by weight of the emissions leaving the destructor when illuminants are charged. The resultant controlled stack emissions of 1.24 lb/hr are less than the Illinois emission limits of 1.56 lb/hr for existing processes at a process weight rate of 473 lb/hr. This controlled emission release is exceptionally low when one considers that most processes do not release an amount of aerosols that equals the weight of the process material charged into the operation.

Test #3 shows that when ammonium nitrate scrap is destroyed, the controlled emissions are 0.51 lb/hr which is well below the state limit of 1.40 lb/hr when the process weight is 400 lb/hr.

No particulates were measured when the charcoal bed was heating up because this start-up requires only 10-15 minutes and no visible emissions were observed during this time when the scrubber was operating.

All emissions gave negligible Ringelmann readings. Moisture condensation plumes were observed during the illuminant (Test #2) and the ammonium nitrate (Test #3) runs with the more brilliant plume occurring during Test #2.

Additional calculations, notes and data related to these tests are recorded in Dr. H.E. Hesketh's Notebook No. 71.

Emission Test Procedure

Copies of the test data sheets, calculation sheets and equipment schematic are attached. Note that the test procedure was essentially as outlined in the memo of 11/21/72 which was transmitted to the Illinois EPA on 11/22/72. Actual test procedures used which deviated from the proposed procedures are:

Particulate Matter:

A 5-minute sample was taken from the centroids of each of the 12 equal areas giving the total sample time per run of 60 minutes. This minimum time interval is suggested by both the Federal Register 24890, Method 5 (1971) and the new ASTM Method D 2928-71.

Gases:

The barium-thorin procedure as outlined in the Federal Register 24890, Method 6 (1971) and as approved by the Illinois EPA (John C. Reed letter to Olin dated 1/3/73) was used for the sulfur dioxide determination. Note that this method showed 0 ppm SO_2 (Test #2). (The Faristor measurements observed during a previous illuminant destruction test showed about 30 ppm SO_2.) The approved SO_2 test procedure as used is shown in the equipment schematic.

Carbon monoxide was measured by both gas chromatographic and colorimetric tube length of stain procedures. The accurate gas chromatography results are reported, but it is interesting to note that the length of stain results were 1 to 2 times higher. Possibly this was due to interference of other substances.

IL-15-14

EXHIBIT "A"

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
2200 CHURCHILL ROAD
SPRINGFIELD, ILLINOIS 62706

RICHARD B. OGILVIE, GOVERNOR
WILLIAM D. BLASER, DIRECTOR

OPERATING PERMIT APPLICATION

FOR EXISTING INCINERATOR*

FOR OFFICIAL USE ONLY
I.D. NO.
PERMIT NO. O
I
DATE

1a. NAME OF OWNER: Olin Corporation	1b. NAME OF OPERATOR:
2a. TELEPHONE NUMBER OF OWNER: 618/985-3721	2b. TELEPHONE NUMBER OF OPERATOR:
3a. STREET ADDRESS OF OWNER: P.O. Drawer G	3b. STREET ADDRESS OF OPERATOR:
4a. CITY OF OWNER: Marion,	4b. CITY OF OPERATOR:
5a. STATE OF OWNER: Illinois; 6a. ZIP CODE: 62959	5b. STATE OF OPERATOR: ; 6b. ZIP CODE:
7. NAME OF CORPORATE DIVISION OR PLANT (IF DIFFERENT FROM OWNER):	
8. TELEPHONE NO. OF DIV. OR PLANT	9. LOCATED WITHIN CITY LIMITS: YES NO X; 10. STREET ADDRESS OF EMISSION SOURCE:
11. CITY:	11a. TOWNSHIP: ; 12. COUNTY: ; 13. ZIP CODE:

THE UNDERSIGNED HEREBY MAKES APPLICATION FOR A PERMIT TO OPERATE THE EQUIPMENT DESCRIBED HEREIN AND CERTIFIES THAT THE STATEMENTS CONTAINED HEREIN ARE TRUE AND CORRECT, AND FURTHER CERTIFIES THAT ALL PREVIOUSLY SUBMITTED INFORMATION REFERENCED IN THIS APPLICATION REMAINS TRUE, CORRECT AND CURRENT.

OWNER (IF INDIVIDUAL)

SIGNATURE DATE

YOUR IDENTIFICATION NUMBER (OPTIONAL)

OWNER (IF CORPORATION OR PARTNERSHIP)

Olin Corporation 1-21-74

EXACT CORPORATE OR PARTNERSHIP NAME DATE

BY J. Holcombe - Corp. Vice Presider & General Manager

SIGNATURE TITLE

Winchester-Western Division

OPERATOR MUST SIGN IF DIFFERENT FROM OWNER

OPERATOR (IF INDIVIDUAL)

SIGNATURE DATE

OPERATOR (IF CORPORATION OR PARTNERSHIP)

EXACT CORPORATE OR PARTNERSHIP NAME DATE

BY

SIGNATURE TITLE

IF AN OWNER OR OPERATOR IS A CORPORATION, IT MUST HAVE ON FILE WITH THE AGENCY A CERTIFIED COPY OF A RESOLUTION OF ITS BOARD OF DIRECTORS AUTHORIZING THE INDIVIDUALS SIGNING THE APPLICATION TO EXECUTE THIS OPERATING PERMIT APPLICATION AND TO CAUSE OR ALLOW THE CONSTRUCTION MODIFICATION AND OPERATION OF THE EQUIPMENT TO BE COVERED ON THE PERMIT.

*THIS APPLICATION FORM SHALL BE USED FOR ONLY INCINERATOR LESS THAN TWO THOUSAND (2000) LB/HR CAPACITY. FOR OTHER INCINERATORS FORM APC-60 PLUS SUITABLE ADDITIONAL FORMS SHALL BE USED.

Exhibit A - 1 page

Form APC-63 plus attachments - 27 pages

FOR OFFICIAL USE ONLY

AP D. NO [ ] PERMIT NO. I [ ]

14. WAS THE EQUIPMENT DESCRIBED IN THIS INFORMATION FORM INSTALLED AT THE PLANT OR PREMISES ON OR BEFORE APRIL 14, 1972? [ ] YES [ ] NO

IF NO, STATE WHETHER THE APPLICANT HAD, ON OR BEFORE APRIL 14, 1972, ENTERED INTO A BINDING AGREEMENT OR CONTRACTUAL OBLIGATION TO UNDERTAKE AND COMPLETE, WITHIN A REASONABLE TIME, A CONTINUOUS PROGRAM OF CONSTRUCTION OR MODIFICATION OF THE EQUIPMENT DESCRIBED IN THIS INFORMATIONAL FORM: [X] YES [ ] NO

15. APPLICANT MUST SUBMIT: A PLOT PLAN AND MAP SHOWING DISTANCES TO NEAREST BOUNDARY OF THE PROPERTY ON WHICH THE EMISSION SOURCE IS LOCATED AND THE DISTANCES TO NEAREST RESIDENCES, LODGINGS, NURSING HOMES, HOSPITALS, SCHOOLS, COMMERCIAL, AND MANUFACTURING ESTABLISHMENTS UP TO THREE-HUNDRED (300) FEET.

16. STATE INSTALLATION DATE OF THE INCINERATOR.
HAS THE ENVIRONMENTAL PROTECTION AGENCY OR THE ~~TECHNICAL SECRETARY OF THE FORMER~~ AIR POLLUTION CONTROL BOARD ISSUED AN INSTALLATION PERMIT FOR THIS INCINERATOR? [ ] YES [X] NO. IF "YES", CITE THE INSTALLATION PERMIT NUMBER ________.

a. IS THE DATA AND INFORMATION PREVIOUSLY SUBMITTED TRUE, CORRECT, AND CURRENT? [X] YES [ ] NO

b. HAVE ALL CONDITIONS OF THE PERMIT BEEN COMPLIED WITH? [ ] YES [ ] NO

c. IF ANSWER TO a OR b IS "NO" EXPLAIN IN DETAIL AND MARK EXPLANATION AS EXHIBIT A. TOTAL NUMBER OF PAGES IN EXHIBIT A 1

IF THE ANSWERS TO ALL QUESTIONS IN ITEM 16 ARE "YES" AND THE APPLICANT HAS CITED THE APPROPRIATE INSTALLATION OR CONSTRUCTION PERMIT NUMBER, ITEMS 17 THROUGH 26 NEED NOT BE COMPLETED.

	FOR AGENCY USE ONLY DO NOT COMPLETE THIS SECTION
17. DESCRIPTION OF SOURCE OF WASTE: See attachments for balance of information.	
18. MAKE OF INCINERATOR:	MANUFACTURER CODE
19. INCINERATOR MODEL NO: 20. [ ] FLUE [ ] MULTIPLE CHAMBER [ ] SINGLE CHAMBER	MODEL CODE
21. MAXIMUM AMOUNT OF WASTE TO BE INCINERATED: ________ LB/HR	CAPACITY CODE
22. ESTIMATED DAILY AMOUNT OF WASTE TO BE INCINERATED: ________ LB	PARTICULATE EMISSION FACTOR CODE
23. HEIGHT OF STACK ABOVE GRADE: ________ FT.	CO EMISSION FACTOR CODE
24. HEIGHT OF NEAREST OBSTRUCTION WITHIN 150 FT.: ________ FT.	
25. [ ] YES [ ] NO PRIMARY BURNER USED: MAX. RATING ________ BTU/HR	PRIMARY BURNER CODE
26. [ ] YES [ ] NO SECONDARY BURNER USED: MAX. RATING ________ BTU/HR	SECONDARY BURNER CODE

27. DESCRIPTION OF TYPICAL WASTE (COMPLETE ITEMS 27a THROUGH 27k AND 38 AS APPLICABLE):

27a. PAPER ____ % BY WT	27b. DRY WOOD: ____ % BY WT	27c. LEATHER, LINOLEUM: ____ % BY WT
27d. RUBBER AND PLASTICS: ____ % BY WT	27e. OILS AND PAINTS: ____ % BY WT	27f. STREET AND FLOOR SWEEPINGS: ____ % BY WT
27g. FATS AND MEAT DRESSING: ____ % BY WT	27h. GLASS AND CERAMICS: ____ % BY WT	27i. METALS: ____ % BY WT
27j. LEAVES, GRASS, BRANCHES VEGETABLES & FRUITS: ____ % BY WT	27k. OTHER (SPECIFY): ____ % BY WT	

28. AVERAGE OPERATION TIME OF INCINERATOR: ____ HRS/DAY ____ DAYS/WEEK ____ WKS/YEAR

29. PERCENT OF ANNUAL THROUGHPUT: DEC-FEB ____ % MAR-MAY ____ % JUNE-AUG ____ % SEPT-NOV ____ %

GAS SCRUBBERS

30. MAKE AND MODEL:	31. FLOW RATE: ____ GPH	32. CAPACITY: ____ SCFM
33. PRESSURE DROP ____ IN-H_2O	34. PRESSURE AT NOZZLES: ____ PSI	35. COMPOSITION OF SOLUTION:
36. EFFICIENCY (ATTACH SUPPORTING DATA): ____ %	37. DISPOSITION OF WASTE:	

38. NOTE: FOR INDUSTRIAL WASTES, COMPLETE COMPONENT AND/OR CHEMICAL DESCRIPTION INCLUDING SULFUR, CHLORIDE, ASH, AND MOISTURE CONTENT MUST BE GIVEN IN AN ADDENDUM ATTACHED TO THIS APPLICATION.